

**AMENDMENTS TO THE DRAWINGS:**

Please replace sheet three of the drawings with the attached replacement sheet.

### **REMARKS**

Claims 1-63 have been withdrawn.

Claims 64 to 82 are currently being examined, and stand rejected.

#### **Section 112 Rejections:**

Claim 69 was rejected as containing the term "stiffened portion". The Examiner stated that this term was not described in the specification.

Claim 69 has been amended to include a "strengthening ridge". This strengthening ridge 114 is seen in Figs. 1C, 1D and 1E and is described in Para. 0054 of the specification.

#### **Section 102 and 103 Rejections:**

Fritz et. al. (Science, 2000) was the primary reference used in rejecting all of the pending claims.

Specifically, claims 64 to 73, 77 to 80 and 82 were rejected as anticipated by Fritz , and claims 74 to 76 and 81 were rejected as obvious over Fritz in combination with other references.

#### **The Fritz Reference:**

On Page 316, 2<sup>nd</sup> paragraph, line 11, Fritz states that:

"The bending of each cantilever was measured in situ, using an optical beam deflection technique (14)".

Endnote 14 (on page 318) then states:

**"Each cantilever is illuminated by one vertical cavity surface-emitting laser.....**  
The [lasers] are time multiplexed..... Detection of the reflected light by a **single linear position-sensitive detector.....** was used to measure the bending of each cantilever."  
[emphasis added]

Fritz thus discloses a system where **each cantilever has its own dedicated laser**.

I.E.: There are an equal number of lasers and cantilevers. Importantly as well, these individual lasers are multiplexed (i.e.: turned on and off in sequence at 1.3 Hz) since they all **share the same single linear position-sensitive detector**. (See endnote 14 on page 318).

#### **The Presently Claimed Invention:**

Claim 64 has been amended to clarify that the presently claimed invention operates with a **single** optical beam source and an optical detector **array**.

In operation, a beam from a **single beam source** is directed simultaneously at all of the microcantilevers. For example, see Figs. 5A, 6A and 6B, where a single collimated laser beam is emitted from laser 520 or 610. This single laser beam is directed simultaneously over the plurality of microcantilevers 510 or 660. Thereafter, separate reflected beams from each of the microcantilevers are directed towards an optical detector array 640. As can be seen in Figs. 6C, the reflected beam spot moves from position 646A to 646B as cantilever 660A bends. (See Paras. 0073 and 0079 of the specification). The movement of the reflected beam spot from position 646A to 646B is detected by the optical detector **array** 545 or 640. This optical detector **array** may comprise an array such as a CCD camera or a CMOS Array (See Paras. 0077 or 0079 of the specification).

#### **The Present System Distinguished:**

First, the presently claimed system uses a single laser beam emitted from a **single laser source**. In contrast, Fritz uses a **plurality of separate laser sources**, with one laser beam source being used for each cantilever. Thus, Fritz needs an equal number of lasers and cantilevers.

Secondly, the presently claimed system uses an optical detector **array**. In contrast, Fritz's individual lasers must be turned on and off one after another (i.e.: multiplexed at 1.3 Hz) since they all **share the same single linear position-sensitive detector**.

A first important advantage of the present system is its reduced complexity. Simply put, **only one laser is required**. As a result, the potential for alignment errors (caused by many separate lasers) is avoided.

A second advantage of the present invention optical detector **array** is that it can **simultaneously** detect movement of more than one microcantilever in real time. This is because the present system uses a detector array to simultaneously view movement of a plurality of microcantilevers. This is seen clearly in Fig. 6B where detector array 645 can detect movement of both microcantilevers 660A and 66B.

In view of the present amendments and the forgoing statements, the Applicants respectfully request the claim rejections over Fritz be withdrawn.

**Drawings:**

The Examiner stated that Figs. 2A and 2B should be labelled as "Prior Art".

Suitable replacement sheets for Figs. 2A and 2B are enclosed.

Conclusion:

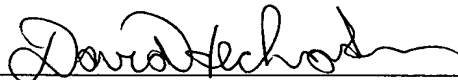
For the reasons presented above, all claims are believed to be in condition for allowance. A Notice of Allowance is therefore respectfully requested.

Should the Examiner feel that a telephone conference would advance prosecution of the present application, he is invited to call the undersigned attorney at the number listed below.

Respectfully submitted,

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